CLAIMS

WHAT IS CLAIMED IS:

1.   A method of facial identification comprising the steps of:

comparing a photograph of a person to a database of images having a plurality of images of each of a plurality of persons and generating a confidence percentage for each of a plurality of matching images from said database based upon similarities between said matching images and said photograph of said person; and

generating an extra confidence percentage corresponding to at least one of said plurality of matching images.

2.   A method of facial identification according to claim 1, further comprising the step of generating said extra confidence percentage based upon a number of matching images corresponding to one of said plurality of persons.

3.   A method of facial identification according to claim 1, wherein said step of generating an extra confidence percentage comprises the steps of:

determining a number of matching images corresponding to one of said plurality of persons;

dividing said number of matching images corresponding to said one of said plurality of persons by a total number of matching images; and

multiplying the result of said dividing step by a maximum extra confidence percentage.

4.   A method of facial identification according to claim 1, further comprising the step of adding said extra confidence percentage to a confidence percentage of at least one of said matching images.

5.   A method of facial identification according to claim 3, further comprising the step of adding said extra confidence percentage to a confidence percentage of at least one of said matching images.

6.   A method of finding up to a pre-set number of database images each having at least a pre-set confidence percentage that said database image matches a target facial image, comprising the steps of:

reconstructing a first 2D facial image database into a second 2D facial image database, said first 2D facial image database having a first facial image for a person, said second 2D facial image database having a plurality of parsed facial images for said person;

choosing a qualification percentage no greater than said pre-set confidence percentage;

choosing a qualification candidate number;

creating a voting group of people corresponding to parsed images from said second 2D facial image database by finding up to said qualification candidate number of highest matches of said target facial image using a 2D facial recognition algorithm;

generating a combined matching confidence percentage for each person in said voting group;

creating a final match list for said target facial image by selecting up to said pre-set number of highest matches from said voting group said combined matching confidence percentage for each person in said voting group.

7.   A method according to claim 6 wherein said reconstructing step, comprising the steps of:

generating a 3D module from one or more images of a person in said first 2D facial image database;

generating a plurality of parsed 2D images from said 3D module of said each person in said first 2D facial image database.

8.   A method according to claim 7 wherein said plurality of parsed 2D images comprises at least one hundred images.

9.   A method according to claim 7 wherein said generating parsed 2D images step comprises the steps of:

rotating said 3D module to one or more different angles; and

saving a plurality of 2D images corresponding to said one or more different angles.

10.   A method according to claim 7 wherein said generating parsed 2D images step comprises the steps of:

selecting one or more different angles based upon known angles of said target image;

rotating said 3D module to said one or more different angles; and

saving a plurality of 2D images corresponding to said one or more different angles.

11.   A method according to claim 7 wherein said generating parsed 2D images step comprises the steps of:

changing the lighting for said 3D module to a plurality of lighting settings; and

saving a plurality of 2D images corresponding to said lighting settings.

12.   A method according to claim 7 wherein said generating parsed 2D images step comprises the steps of:

selecting a plurality of lighting settings based upon one or more known lighting settings of said target image;

changing the lighting for said 3D module to said plurality of lighting settings; and

saving a plurality of 2D images corresponding to said lighting settings.

13.   A method according to claim 11 wherein said step of changing the lighting comprises changing the lighting strength.

14.   A method according to claim 11 wherein said step of changing the lighting comprises changing the lighting colors.

15.   A method according to claim 11 wherein said step of changing the lighting comprises changing the lighting brightness.

16.   A method according to claim 11 wherein said step of changing the lighting comprises changing the lighting hue.

17.   A method according to claim 6 wherein said reconstructing step comprises the steps of:

generating said parsed images by rotating a 2D image of a person in said first 2D facial image database, and further saving as 2D images.

18.   A method according to claim 6 wherein said second 2D facial image database comprises an identical number of parsed images for each person.

19.   A method according to claim 6 wherein said second 2D facial image database comprises a similar number of parsed images for each person.

20.   A method according to claim 19 wherein the number of parsed images for each person in said second 2D facial image database are within plus or minus five percent.

21.   A method according to claim 6 wherein said qualification candidate number is chosen as an average number of parsed images per person in said second 2D facial image database.

22.   A method according to claim 6 further comprising the step of assigning an ID to a plurality of images in said second 2D database corresponding to a single person.

23.   A method according to claim 22 further comprising the step of digitizing said plurality of parsed images of said single person into templates.

24.   A method according to claim 23 further comprising the step of assigning said ID to said templates.

25.   A method according to claim 23 further comprising the step of digitizing said first facial image of said person into a template.

26.   A method according to claim 25 further comprising the step of assigning said ID to said templates of said parsed images and to said template of said first facial image of said person.

27.   A method according to claim 23 wherein said step of creating a voting group of people corresponding parsed images from said second 2D facial image database by finding up to said qualification candidate number of highest matches of said target facial image using a 2D facial recognition algorithm is performed based upon said templates.

28.   A method according to claim 26, further comprising the step of removing said plurality of parsed images from said second 2D facial image database.

29.   A method according to claim 24 wherein said matches with same ID in said voting group belong to a same person.

30.   A method according to claim 24 wherein said combined matching confidence percentage of a person is generated from said matches with same ID of said person.

31.   A method according to claim 6 wherein only said first facial image of a person is listed in said final match list.

32.   A method according to claim 6 wherein an extra confidence percentage is chosen for determining said combined matching confidence percentage of a person.

33.   A method according to claim 6 wherein said combined confidence percentage of a person in said voting group is determined as the maximum percentage of said person in said voting group plus the number of matches of said person in voting group divided by the said qualification candidate number times the said extra confidence percentage.

34.   A method according to claim 6 wherein said combined confidence percentage of a person is set to 100 if said combined confidence percentage is greater than 100.

35.   A method according to claim 6 wherein the number of matches in said final match list is zero if the number of said voting group is zero.

36.   A method according to claim 6 wherein said combined confidence percentage of a person in said voting group is determined as the maximum percentage of said person in said voting group.